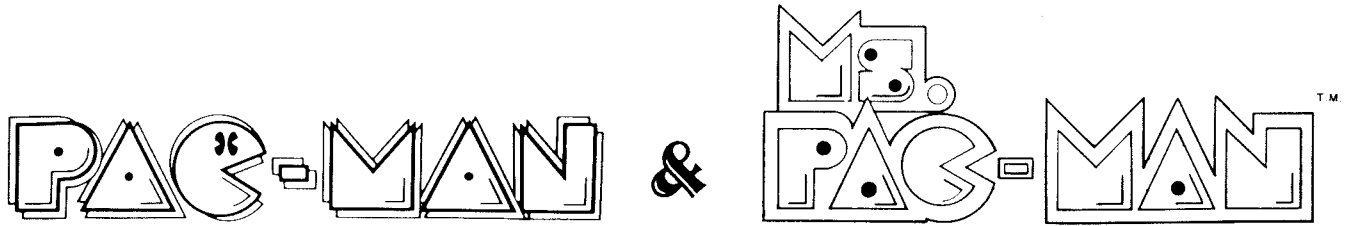
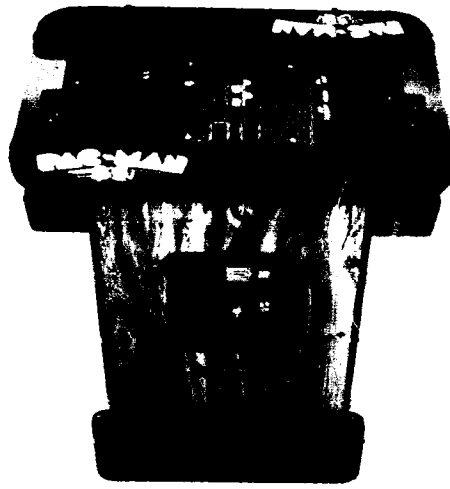
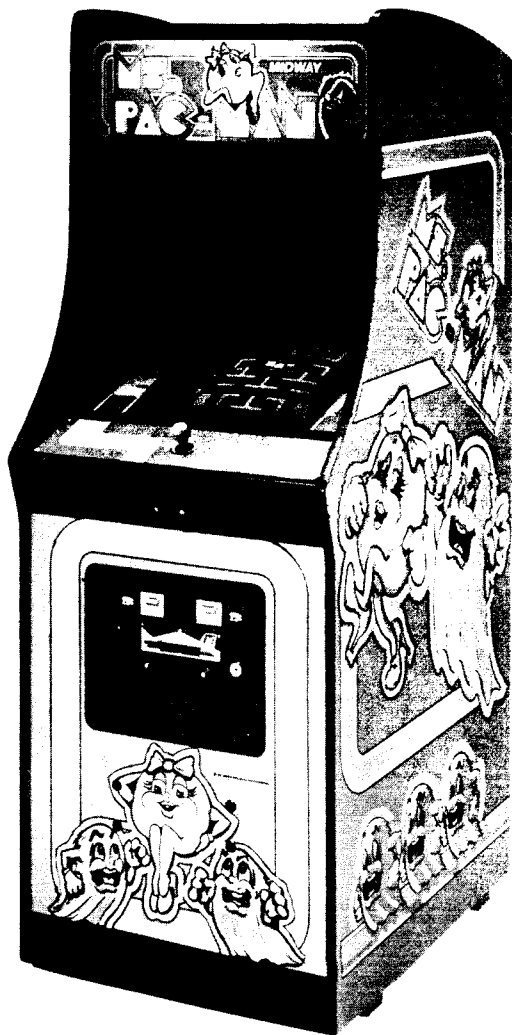


MIDWAY'S



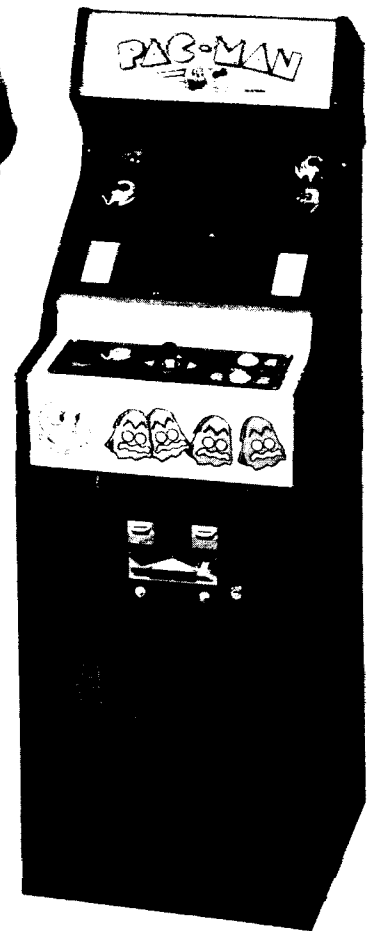
TROUBLE SHOOTING LOGIC BOARD PART I



COCKTAIL #933

UP-RIGHT #932

MINI #934



PHONE:
(312) 452-5200

FORM-00238-8012



MIDWAY MFG. CO.

A BALLY COMPANY

10750 WEST GRAND AVENUE
FRANKLIN PARK, ILLINOIS 60131
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MS. PAC-MAN

A more challenging version of the well-known Pac-Man maze game, Ms. Pac-Man is sure to be the most popular girl in the game world.

Pursued by the familiar Inky, Blinky, Pinky and the newest ghost, Sue, Ms. Pac-Man goes through 4 new and changing mazes that increase in difficulty and offer varying side exit locations. Each of the 4 mazes has an additional 2 side exits that give Ms. Pac-Man a total of 4 ways out of the maze.

Dots score 10 points each with Power Dots serving 50 points each. Points double for each ghost Ms. Pac-Man munches. 200 points for the first, 400 for the second and 800 and 1600 points consecutively for the third and fourth ghosts. When Ms. Pac-Man is caught herself, she dramatically swoons and falls.

As in Pac-Man, bonus fruit symbols indicate how many times a player has cleared the screen of dots. Ms. Pac-Man boasts additional bonus fruit symbols that also float freely through the maze and have higher point values when gobbled.



100 points

200 points

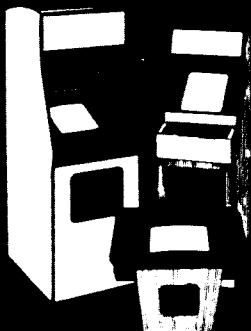
500 points

700 points

1,000 points

2,000 points

5,000 points



Ms. Pac-Man is available in all three Midway models: the Upright, Mini-Myte™ and Cocktail Table designs.

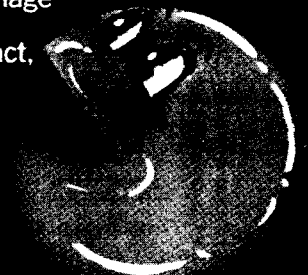
Upright—Height 73," Width 26½," Depth 34"

Mini-Myte—Height 60¾," Width 19½," Depth 23¾"

Cocktail—Height 29," Width 32," Depth 22"

Warning—Midway Mfg. Co. intends to assert its copyright and trademark rights in this game against any infringements.

Along with a new sound package players may witness the touching love story of Ms. Pac-Man's meeting Pac-Man himself, their courtship and marriage and even the delivery of Pac-Baby™ in the three act, between-maze cartoon series.



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SELF-TEST DISPLAY AND BOARD LOCATION COORDINATES

MEMORY OK or (M-Rom-1 / Bad C Ram-0 / Bad W Ram-1 / etc.)

*1 COIN *1 CREDIT
BONUS *15000
MS. PACK-MEN *3
UPRIGHT or (TABLE)

* = switch selectable

If a bad ROM or Ram chip is found by the games internal check system during the Self-Test, the game indicates this to you by showing the location code of the bad chip(s) in place of the "MEMORY OK" message. The following table translates the chip location codes into actual positions on the game logic P.C. Board.

DISPLAY	DESCRIPTION
MEMORY OK	All RAMs are good.
BAD V RAM-0	RAM located on Logic PC board at position 4K is bad.
BAD V RAM-1	RAM located on Logic PC board at position 4N is bad.
BAD C RAM-0	RAM located on Logic PC board at position 4L is bad.
BAD C RAM-1	RAM located on Logic PC board at position 4P is bad.
BAD W RAM-0	RAM located on Logic PC board at position 4M is bad.
BAD W RAM-1	RAM located on Logic PC board at position 4R is bad.
MEMORY OK	All ROMs are good.
M-ROM-0	ROM located on Logic PC board at position 6E is bad.
M-ROM-1	ROM located on Logic PC board at position 6F is bad.
M-ROM-2	ROM located on Logic PC board at position 6H is bad.
M-ROM-3	ROM located on Logic PC board at position 6J is bad.

The detection of bad components on the Auxiliary Logic PC Board is not quite as simple as is the case for the Main Logic PC Board. The following table lists the components that are on this Auxiliary PC Board and what symptoms they will cause to appear on the monitor when each is bad.

---BAD COMPONENT/SYMPTON TABLE---

BAD COMPONENT	SYMPTOM DISPLAYED ON MONITOR (GAME IS NOT IN SELF-TEST)
Z-80 CPU	<u>STATIONARY color garbage (parts of pictures)</u> CPU located on Auxiliary PC board at position U4
E-ROM-0	<u>Game goes through warm-up routine over & over & over---</u> ROM located on Auxiliary PC board at position U5
E-ROM-1	<u>Game goes through warm-up routine over & over & over---</u> ROM located on Auxiliary PC board at position U6
E-ROM-2	<u>FLASHING color garbage (parts of pictures)</u> ROM located on Auxiliary PC board at position U7

---BAD COMPONENT/SYMPTON TABLE CONTINUED---

BAD COMPONENT	SYMPTOM DISPLAYED ON MONITOR (GAME IS NOT IN SELF-TEST)
CUSTOM CHIP CG-820	Monitor screen reads out "ROM 0" With game in Self-Test — Screen reads "BAD ROM-0" CG-820 located on Auxiliary PC board at position U0
CUSTOM CHIP CG-821	Monitor screen displays FLASHING color garbage (parts of pictures) CG-821 located on Auxiliary PC board at position U1
CUSTOM CHIP CG-822	Screen display is same as for CG-821. With game in Self-Test — Screen reads out UPSIDEDOWN "BAD W RAM-0" CG-822 located on Auxiliary PC board at position U2
CUSTOM CHIP CG-823	Screen display is same as for CG-821 CG-823 located on Auxiliary PC board at position U3

To check your game function switches and buttons (coin counter switches, TEST CREDIT button, 1 PLAYER and 2 PLAYER buttons): active each one while the game is in the Self-Test mode. You should hear a game sound for each activation. If you do not hear it, the switch/button is either not working, miswired, or disconnected. Check it out thoroughly.

When finished with the Self-Test mode, slide the Self-Test switch back to the "OFF" position.

- ° A cross hatch pattern appears on the monitor screen for about 1 to 2 seconds.
- ° If you wish to keep this test pattern on the monitor screen for further use, slide Self-Test switch to the "ON" position **after** the cross hatch pattern appears and **before** it disappears.
- ° When finished with the cross hatch pattern, set the Self-Test switch to the "OFF" position.
- ° Normal game functions will now return to the monitor screen.

OPTION SWITCH SETTINGS:

To change the option switch settings, you DO NOT have to take the Main Game Logic Board out of the game. They can be easily reached through the rear access door on the Upright and Mini models. On the Cocktail Table model, you do have to open the table top to reach them.

When changing any options, ALWAYS put the game into the Self-Test mode, make your changes, check the results on the monitor screen, take the game out of the Self-Test mode, and play the game to be sure the switches have worked properly and that no switches were accidentally moved that were not meant to be. (These switches are small and this can happen.)

The option switch settings and what they will make the game do, are shown in the following Figure.

MS. PAC-MAN

OPTION SWITCH SETTINGS

METHOD OF PLAY

FREE PLAY
1 COIN 1 PLAY
1 COIN 2 PLAYS
2 COINS 1 PLAY

SW#1	SW#2	SW#3	SW#4	SW#5	SW#6	SW#7	SW#8
ON	ON						
OFF	ON						
ON	OFF						
OFF	OFF						

NUMBER OF MS. PAC-MEN PER GAME

1 MS. PAC-MAN
2 MS. PAC-MEN
3 MS. PAC-MEN
5 MS. PAC-MEN

ON	ON
OFF	ON
ON	OFF
OFF	OFF

BONUS MS. PAC-MEN

BONUS MS. PAC-MAN AT 10,000 POINTS
BONUS MS. PAC-MAN AT 15,000 POINTS
BONUS MS. PAC-MAN AT 20,000 POINTS
NO BONUS

ON	ON
OFF	ON
ON	OFF
OFF	OFF

SPECIAL FUNCTIONS

AUTOMATIC RACK ADVANCE
FREEZE VIDEO (MONITOR PRESENTATION STOPS MOVING)
GAME OPERATES NORMALLY

ON	OFF
OFF	ON
OFF	OFF

MS. PAC-MAN

AUXILIARY P. C. A084-91415-B617

CHIP NUMBER	FUNCTION
Z80	CPU
2532	4K X 8 EPROM
2716	2K X 8 EPROM
CG820	Custom Component
CG821	Custom Component
CG822	Custom Component
CG823	Custom Component



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CABLE — MIDCO
TELEX NO. 72-1596

February 12, 1982

SERVICE BULLETIN

GAME: MS. PAC-MAN

SUBJECT: MS. PAC-MAN MAIN LOGIC BOARD
(PC A082-91375-B000)

1. The main "Ms. Pac-Man" logic board is the same logic board as in Pac-Man.
2. There are two minor changes:
 - A. Character Proms at 5E and 5F are Ms. Pac-Man type.
 - B. The Z80 is removed and inserted into Ms. Pac-Man auxiliary board (PC A084-91415-B617).

Andy Ducay
Service Manager

AD/dd

